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Pesticide Fact Sheet Number 76: Trimethacarb

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Pesticide Fact Sheet

Name of Chemical: TRIMETHACARB

Reason for Issuance:

Date Issued: September 30, 1985

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1. DESCRIPTION OF CHEMICAL

- Generic Name: 2,3,5- and 3,4,5-trimethylphenyl methylcarbamate
- Common Name: Trimethacarb
- Trade Names: Broot® and Landrin®
- EPA Shaughnessy Codes: 102401 (3,4,5-isomer)
102402 (2,3,5-isomer)
- Chemical Abstracts Service (CAS) Numbers:
2686-99-9 (3,4,5-isomer)
3971-89-9 (2,3,5-isomer)
- Year of Initial Registration: 1973
- Pesticide Type: Insecticide
- Chemical Family: Carbamate
- U.S. Producer: Union Carbide Agricultural Products Company, Inc.

2. USE PATTERNS AND FORMULATIONS

- Application sites: Field corn and popcorn
- Types of formulations: 15% granular
50% wettable powder
- Types and methods of applications: ground application as a granular or spray
- Application rates: 0.9 - 1.35 lb active ingredient/acre

3. SCIENCE FINDINGS

Chemical Characteristics

- Technical trimethacarb is a buff to brown crystalline powder with a mild ester odor. The melting point is 105 - 114°C.
- Trimethacarb is soluble in water to 58 ppm at 23°C and hydrolyzes to trimethylphenols, CO₂, and methylamine at pH values greater than pH 8.

Toxicology Characteristics

- Acute oral: 125 mg/kg (rat), Toxicity Category II
- Acute dermal: 2 gm/kg (rabbit), Toxicity Category III
- Primary Eye Irritation: slight eye irritation (rabbit), Toxicity Category III

Toxicology Characteristics

- Acute Inhalation: Data gap
- Primary Skin Irritation: Non irritant, Toxicity Category IV
- Skin Sensitization: Data gap
- Major Routes of Exposure: Human exposure from trimethacarb applications is from handling, mixing and application. Major exposure is expected to be mainly dermal. Because of trimethacarb's low dermal toxicity protective clothing is not required.
- Oncogenicity: Data Gap
- Metabolism: Data Gap
- Teratology: Data Gap
- Reproduction: Data Gap
- Mutagenicity: Data Gap

Physiological and Biochemical Characteristics

- Mechanism of pesticidal action: Cholinesterase inhibition
- Metabolism and persistence in plants and animals: systemic in plants. Like other carbamates, it is metabolized rapidly in animals.

Environmental Characteristics

- Available data are insufficient to fully assess the environmental fate of trimethacarb. Data gaps exist for all required studies.

Ecological Characteristics

- Avian acute oral toxicity: Data Gap
- Avian dietary toxicity: 2300 ppm for Mallard Duck, 4500 ppm for Ring-Neck Pheasant, and 2000 ppm for Japanese Quail (slightly toxic)
- Freshwater Fish toxicity: Cold water species (rainbow trout) -- 1.0 mg/l (highly toxic); warm water species (blue gill) -- 11.6 mg/l (slightly toxic).
- Aquatic freshwater invertebrate toxicity: Data Gap
- Additional data are required to fully characterize the ecological effects of trimethacarb.

Tolerance Assessment

- Established tolerances are published in 40 CFR 180.305 to cover the sum of the residues of both components (3,4,5 and 2,3,5-trimethylphenyl methylcarbamate) of trimethacarb and they are:

<u>Commodity</u>	<u>Parts Per Million</u>
field corn	0.1
popcorn	0.1
corn fodder	0.1
corn forage	0.1

- The Agency is unable to complete a full tolerance assessment for the established tolerances because of certain residue chemistry and significant toxicology data gaps.
- The residue data for trimethacarb in or on corn grain, corn fodder and forage are not adequate to support the established tolerances. Additional data are required.
- Data are required to determine whether food additive tolerances are needed for residues in processed products of corn.
- Residue data must be submitted and a tolerance must be proposed for residues in or on corn silage.
- A pregrazing restriction must be proposed for corn forage.
- Based on the established tolerances the theoretical maximum residue contribution (TMRC) for trimethacarb residues in the human diet is 0.0016 mg/day for a 60 kg person with a 1.5 kg diet. However, no acceptable chronic toxicology exists for calculation of the acceptable daily intake (ADI).

4. Summary of Regulatory Position and Rationale

- The Agency has determined that it should continue to allow the registration of trimethacarb. None of the criteria for unreasonable adverse effects listed in the regulations (§162.11(a)) have been met or exceeded. However, because of gaps in the data base a full risk assessment cannot be completed.
- For end-use products, the product label must include a crop rotation statement that permits crop rotation only in trimethacarb treated soil with those crops registered for trimethacarb. This restriction is imposed until the Agency has adequate accumulation data from typical rotated crops or tolerances are established on these crops.

- Also, a full tolerance reassessment cannot be completed because of major residue chemistry and toxicology data gaps. Until these gaps are filled trimethacarb will not be registered for any significant new uses.
- Available data are insufficient to fully assess the environmental fate of and the ecological effects from trimethacarb.

5. Summary of Major Data Gaps

- The full complement of chronic toxicology requirements: chronic feeding, oncogenicity, reproduction, teratology and mutagenicity.
- The full complement of environmental fate data requirements: degradation (hydrolysis and photodegradation in water), soil metabolism, mobility, dissipation and accumulation.
- Additional data are required : acute avian oral toxicity and freshwater invertebrate acute toxicity.
- Additional data are necessary to characterize the distribution and metabolism of trimethacarb in mature corn plants.

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